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In the Drawings:

Delete Sheet 2, a copy of which is attached hereto, with an
"X" through it.

REMARKS/ARGUMENTS

Claims 24-35 remain pending in the application.

Claims 1-23 have been previously cancelled.

Claims 24 and 35 have been amended to add the "IHL" indication.

The drawings have been amended to delete Sheet 2 of the drawings as redundant.

Initially, dealing with the Information Disclosure Statement matter noted in paragraph 4 of the Office Action, applicant submitted a proper Information Disclosure Statement relating to prior art cited in an International Search Report. Applicant is unaware of any "listing" of prior art in the specification. There is a discussion of prior art techniques discussed in paragraph 0003 of the specification, but there is no prior art listing as such. Paragraphs 0003 - 0008 discuss previous or prior art approaches leading up to discussion of the invention in the paragraph entitled "Summary of the Invention".

The rejection of claims 24 - 35 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is respectfully traversed. Applicant objects to the injection of this totally new and unrelated ground of rejection in the final action.

Initially, it will be observed that the Examiner has correctly cited tests given in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

With respect to item (a), the Examiner states: "The independent claims [claims 24 and 35] are broad enough to encompass IPv4 and IPv6." This is not an accurate statement in that the claims are not broad enough to encompass IPv4 packets. Note that claim 1 states:

A method of accessing the transport header of packets that do not include an Internet header length (IHL) field....

By definition, the IPv4 packets have the Internet header length (IHL) field. As stated at paragraph 0007 of the application:

For IPv4, reaching the upper-layer header is significantly more difficult for packets containing extension headers as the IPv6 header does not have a field like the IHL in IPv4 that can be used to immediately reach the upper-layer header. (Emphasis added.)

Also as stated in paragraph 0003 of applicant's specification:

The Internet Header Length (IHL) field in the IPv4 header indicates the length of these extra fields and the basic header.

Accordingly, the Examiner's statement that the independent claims are broad enough to encompass IPv4 is not true.

The Examiner takes the position that:

Applicant failed to disclose the method of caching the data. The claim can currently be read in one reading as the cache entry occurring within the packet header, which would cause extensive race conditions upon accessing the caching data later in step c.

(Page 4 of the Office Action, third full paragraph.)

To the contrary, applicant's specification describes the caching implementation in paragraphs 0030, 0031, 0032 and 0033 reading as follows:

11 [0030] The cache can be implemented in any number of ways. Possible implementations include the use of a context addressable memory (CAM) or through the use of hash tables. Perhaps the most obvious method is to use an existing CAM. Using the CAM as a cache has its advantages and disadvantages.

5 The main advantage is that with a CAM is that most, if not all, the bits from the key can be used to perform a lookup resulting in very low or no chance, depending on the exact implementation, for there to be a collision when matching a key. This means there will be a very few mismatches due to obtaining the wrong information from the CAM. The downside to a CAM implementation, apart from the fact that
10 CAMs are expensive and constrained by space, is that the CAM lookup may require two memory accesses to do a cache lookup. The first access, a write, provides the CAM with the key and the instruction to perform a lookup. The second access, a read, retrieves the result from the CAM.

15 [0031] As an alternative to using the CAM a hash table can be used to implement the cache. This implementation has certain advantages since it does not consume precious and costly CAM space. Due to the speed that a hash lookup can be performed, this implementation is likely at least as fast, and certainly less costly, as the CAM implementation. The downside to the hash implementation is that there
20 is a greater probability for a collision when matching a key compared to the CAM implementation.

[0032] Depending on exactly how the cache is implemented, it may be possible for a collision to occur when matching a key. This is the result of not using all of the
25 bits of the key as an index into the cache. The effect is that further processing may be required to resolve this collision. It may be that in certain implementations, the cost of resolving these collisions is greater than the cost of serially traversing the extension headers due to incorrect cache information. In these cases, it would be beneficial to simply assume that collisions do not occur. The end result would be

an increase in the frequency of cache and packet data mismatch, but an overall reduction in processing. For hash implementations, this has the additional benefit of reducing the size of the hash table entries as the information that was needed to resolve collisions is no longer needed. The reduction in hash table entry size effectively increases the number of entries in the table, or allows for memory savings.

[0033] As discussed previously, the caching method uses fields from the header in order to build a key to index into the cache. The information stored in the cache is a duplication of the information believed to be in the packet. Because of this duplication, care must be taken to ensure that the cached data matches the data in the packet. In order to do this, at a minimum the lengths of the extension headers must be cached so that the extension headers can be loaded to confirm they match the cached data. If this validation were not performed it would be possible for a malicious host to establish a valid flow, but modify subsequent packets in the flow in order to bypass some security mechanism. As an example, assume an implementation that simply caches the total length of all extension headers. When the first packet, containing many extension headers, in the flow arrives the extension headers are traversed serially, and an entry is added to the cache. MFC is performed on the packet, and the packet is accepted. Another packet in the flow arrives, and the cached data is read. The total extension header offset is used to read what is believed to be the upper-layer header, but which actually a fake header identical to that of the first packet. MFC is performed, and the packet is accepted. Had the extension headers been read serially it would have been clear that this second packet had fewer extension headers than the first packet, and that the real upper-layer header was located earlier in the packet than the one pointed to by the cached data. "

Thus, contrary to the Examiner's assertion, the specification discloses preferred methods of caching the extension header data fully as to enable one skilled in the art to practice the invention.

After all, the Examiner has held that the level of ordinary skill in the art is one having a Bachelor's degree in Electrical or Computer Engineering, and 3-5 years of industry experience. Alternately, one of ordinary skill in the art is considered to be the inventor.

The inventor obviously believes that the specification more than adequately describes how to make, use and otherwise practice the invention.

In view of the above, applicant respectfully submits that the specification contains a written description of the invention and of the manner and process of making and using it in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or to which it is most nearly connected, to make and use the same and sets forth the best mode contemplated by the inventor of carrying out the invention.

In view of the above, further and favorable reconsideration is respectfully requested.

A Request for Continued Examination (RCE) Transmittal is being filed concurrently herewith.

Respectfully submitted,



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Attachments: Request for Continued Examination (RCE) Transmittal
Check - \$810.00
Sheet 2 of Drawings (to be cancelled)

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In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.

CANCEL